

551.506 (73)

WEATHER IN THE UNITED STATES

THE WEATHER ELEMENTS

By P. C. DAY

GENERAL CONDITIONS

March, 1929, was notable for the unusual warmth during the latter half over the districts from the Rocky Mountains eastward and for the heavy rains over most southeastern districts and the resulting floods with some loss of life and immense damage to property, also for severe floods resulting from the rapid melting of the heavy accumulation of snow during January and February in portions of the upper Mississippi Valley and near-by areas, the details of which appear in another section of this issue.

PRESSURE AND WINDS

Generally disturbed atmospheric conditions existed near the beginning of the month, sharp changes being noted in the temperature over the Rocky Mountain region and stormy conditions existing over the Atlantic coast districts.

By the morning of the 3d low pressure existed in the Southwest and heavy rains had set in over the Gulf States. By the following morning the low pressure had developed into a storm of considerable intensity central over the southern Appalachians and heavy rains continued over the East Gulf States area and had extended northeastward over the Atlantic coast to New York, gradually passing off the Canadian maritime Provinces during the following day, the heavy rains continuing into the New England area.

From the 5th to 7th a low-pressure area moved along the entire northern boundary from the Rocky Mountains eastward to the Atlantic coast attended by light local snows over much of this area, and was immediately followed by another reaching New England by the morning of the 9th, but without much precipitation.

During the first decade there had been little or no precipitation over the far West, except for occasional showers along the immediate Pacific Coast, until near the close of the decade when rain became rather general over the Pacific Coast States, some heavy precipitation occurring in portions of southern California where it was much needed.

By the morning of the 12th a cyclone of wide extent had developed over eastern Colorado, and snow was falling over a considerable region to the northwestward, and the rain area had extended eastward locally to near the Lake region and into the West Gulf States. By the following morning the central low-pressure area had moved slowly northeastward to South Dakota, with continued snow over the northern Mountain region, while the rainfall area had extended eastward to the lower Ohio Valley, the southern Appalachians, and the South Atlantic coast, the rains becoming heavy in portions of the Gulf States. During the 14th the rain area extended eastward to southern New England and continued in the Gulf States, becoming markedly heavy over much of Alabama and near-by portions of Mississippi, Tennessee, and Georgia. As this storm gradually dissipated over the more eastern districts another developed over Missouri, and heavy rains again occurred over portions of the middle Gulf States, nearly 9 inches being reported from Montgomery, Ala., during the 24-hour period ending 8 a. m., March 15. The barometric depression associated with this heavy

precipitation moved rapidly from Missouri northeastward to New England by the morning of the 16th, with clearing weather following over most districts, and generally fair weather prevailed over much of the country until the end of the second decade.

At the morning observation of the 21st, low pressure was general over the Great Plains, and by the morning of the 22d precipitation had occurred over an extensive area from the far Northwest eastward to the northern Rocky Mountains and scattered rains had overspread many districts in the East from southern Texas northeastward to the Ohio Valley and into portions of the lower Lake region, some heavy falls being again reported from Alabama and portions of near-by States. During the 24 hours ending 8 a. m. the 23d, the pressure remained low from the Mississippi Valley eastward and heavy rains continued in Alabama and near-by areas, and extended northward into Tennessee, where, in portions of the Cumberland Mountain area, excessive rains amounting to from 6 to 10 inches occurred, one station reporting a total fall of 10.31 inches in 12½ hours.

From the 24th to 30th there was mainly only scattered precipitation over central and eastern districts, and only local showers prevailed in the far West until near the end, when some good rains occurred in the more northern districts.

At the end of the month pressure was low and the weather threatening over portions of the Great Plains, and by the morning of the 31st rain or snow had set in over a considerable area from northeastern Colorado and southeastern Montana eastward to the upper Lakes, the snow or rain changing to glaze in portions of this area. Heavy snows were reported locally over a narrow strip from southeastern South Dakota to southern Wisconsin and the Lake Michigan area.

The anticyclones were mainly unimportant, though that entering the Missouri Valley from Canada about the 8th brought sharp changes to cooler over most northern districts as it passed eastward to the Atlantic coast by the morning of the 12th. Another anticyclone formed over the Plateau region about the 14th and brought moderate changes to cooler as it gradually moved eastward and southeastward to the south Atlantic coast by the morning of the 19th. No important anticyclone occurred during the last decade.

The average pressure at sea level for the month was below normal in all portions of the United States and Canada as far as observations disclose, save in the far western coast districts of both countries. Over the central-northern areas the negative departures from the normal were usually large and some localities reported about the lowest individual sea level pressures of record for March.

The pressure changes from the preceding month of February were unusually large and covered all parts of both countries. The distribution of the average pressure and changes from the normal and from February, 1929, are shown graphically on the usual charts.

Windstorms during the month showed, as was to be expected, a sharp increase over those for the preceding months of January and February, particularly those of tornadic character, of which more than 20 were reported, these occurring mainly during the last decade. Only a comparatively small number of these were attended by loss of life or great property losses.

Full details of all damaging wind and other storms are found in the table at the end of this section.

TEMPERATURE

As shown by Chart No. I, of this issue, March was warmer than normal in all portions of the United States, and Canada likewise, as far as shown by available observations, save for a few localities along the Pacific coast and in portions of the far Southwest, where the month was slightly cooler than usual. Over most of the districts from the Rocky Mountains eastward to the Atlantic coast the positive departures ranged from 4° to 10° and in some cases the monthly means were among the highest of record for March.

Considering the temperature by weeks, that ending March 5 was moderately higher than normal in all parts from the Mississippi River eastward, save in most of the Gulf States; the period was also warmer than normal over the Northern States from the Mississippi River westward and along the Pacific coast, the period being particularly warm from Montana and the Dakotas eastward. It was cooler than normal in the middle and southern Plains and Rocky Mountain regions and the Southern Plateau.

The week ending March 12 was distinctly warm over the central and northern Plains and most of the Rocky Mountain States. In most eastern districts this period was cooler than normal.

The third week was abnormally warm over much of the country, particularly in the Missouri Valley and to the eastward where the averages ranged up to as much as 15° per day warmer than normal. From the lower Mississippi Valley northwestward to southern Oregon and thence southward the week was cooler than normal.

The week ending March 26 was again abnormally warm over the greater part of the country where unusual warmth had prevailed during the preceding week. From the Rocky Mountains westward the week was mostly moderately cooler than normal. This week had some unusually high temperatures for the season of the year, many stations reporting the highest March temperatures of record from the 23d to 25th.

The period from the 26th to the end of the month continued mostly warmer than normal over the districts from the Missouri Valley eastward and southeastward to the Atlantic Coast, the period being particularly warm over the Southeastern States. In the western districts and over the middle and southern Plains the week was mainly cooler than normal, save in portions of California and near-by areas of the far Southwest where there were small positive departures.

The important warm periods of the month were mainly during the last decade, particularly about the 22d to 26th, when temperatures were well above 90° over large areas in the Middle and South Atlantic and Gulf States, the Ohio Valley, and portions of the middle and southern Plains. High temperatures also prevailed on the 28th and 29th over most Mountain and Plateau States and over the Northern States from Montana and Idaho eastward to the upper Lakes. At a few points on the Pacific Coast the highest temperatures were reported during the first few days, San Francisco, Calif., reporting a maximum temperature of 81° on the 3d, the highest ever reported so early in the month.

Minimum temperatures were mainly not unusually low, though readings of 20° below zero or even lower were reported from a few exposed localities in the higher elevations of the central Rocky Mountain States and along the northern border from Minnesota to New England, the lowest reported for the entire country, 33° below zero, occurring in northern New England.

PRECIPITATION

The distribution of precipitation was somewhat unusual, the amounts being in some cases far heavier than normal for March, while in others the total falls were decidedly less. Generally the monthly amounts were above normal from the southern Plains eastward to the Atlantic coast, with important areas in the Southeastern States having two or even three times the usual monthly amounts, notably in southern Alabama and nearby areas in Georgia, Florida and Mississippi, with local falls of 20 inches or above, the maximum fall, 33 inches, being reported from Elba, a point in southern Alabama. Other areas, principally in Tennessee, Kentucky, Louisiana, and North Carolina, reported amounts above 10 inches.

Precipitation was likewise above normal, but to a less extent, over an extensive area from the northern Rocky Mountains eastward to and including portions of the Great Lakes and over near-by portions of the Mississippi Valley.

Damaging sleet and glaze storms occurred in portions of Michigan on the 6th causing serious damage to overhead wires, trees, etc.

RELATIVE HUMIDITY

The percentages of relative humidity were mainly less than normal. The deficiencies were not confined to any particular section, as cases of excess occurred indiscriminately over small areas, but mostly along the northern border and in portions of other districts.

Some large deficiencies occurred in southern Washington, northern California and portions of the Great Plains.

SNOWFALL

There was a rather wide distribution of snowfall, but the monthly amounts were very generally less than usually falls in March, save in the Rocky Mountain regions, where the falls were usually at least equal to or greater than normal. Over the mountains of the Pacific Coast States the snowfall was mainly decidedly less than the usual March amounts.

Some heavy falls, unusual so late in the season, were reported locally as follows: Williston, N. Dak., 7.8 inches on the 7-8; Eastport, Me., 16.4 inches on the 28-29; Yankton, S. Dak., 6.0 inches on the 31st; and Green Bay, Wis., 16.5 on March 31-April 1.

West of the Rocky Mountains the precipitation was practically everywhere less than normal, and over important areas in this part of the country a deficiency has existed for several months, particularly in California and parts of other Pacific Coast States.